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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,413	02/20/2007	Herbert Friedrich Boerner	DE 030393	8163
24737 7590 08/04/2010 PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510				
EXAMINER YANG, JAY				
ART UNIT		PAPER NUMBER		
1786				
MAIL DATE		DELIVERY MODE		
08/04/2010		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary****Application No.**

10/579,413

**Applicant(s)**

BOERNER ET AL.

**Examiner**

J. L. YANG

**Art Unit**

1786

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 May 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/GS/US)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date 05/05/10

**DETAILED ACTION**

1. This Office Action is in response to the Applicant's Amendment filed 05/05/10.

***Response to Amendment***

1. The rejection of Claim 7 under 35 U.S.C. 112, second paragraph, in the Office Action filed 01/06/10 is overcome by amendment.

***Claim Rejections – 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

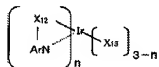
2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. Claims 1-6 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuge et al. (JP 2003-007467 A) in view of Jarikov (US 2004/0076853 A1).

Tsuge et al. discloses an organic EL device comprising a light-emitting layer comprising a (light-emitting) host and dopant material between two electrodes ([Claim 1]). Tsuge et al. discloses that the anode is on a glass substrate ([0019]). Tsuge et al. discloses iridium complex dopants represented by the following formula:



([Claim 9], [Chemical formula 27]) where  $X_{12}$  = aromatic group, ArN = nitrogen-containing aromatic ring,  $n = 1-3$ ,  $X_{13}$  = acac ([0063]). Tsuge et al. discloses possible dopant embodiments with benzoquinoline ligands:



([0052]) and



([0061]). However, Tsuge et al. does not explicitly disclose the use of dibenzoquinoline ligands.

Jarikov discloses the use of dibenzo[f, h]quinoline as useful host material in the light-emitting layer of an organic EL device ([0161]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the benzoquinoline ligand of the iridium dopant in the organic EL device as disclosed by Tsuge et al to produce  $\text{IrL}_3$  or  $\text{IrL}_2(\text{acac})$  where  $\text{L} = \text{dibenzo}[\text{f}, \text{h}]\text{quinoline}$ . The motivation is provided by the fact that Tsuge et al. discloses the possibility of a wide variety of nitrogen-containing aromatics groups as ligands in the generalized formula shown above, in addition to the fact that dibenzo[f, h]quinolines are widely known in the art for use in organic EL devices as disclosed by Jarikov. Moreover, a benzoquinoline to dibenzoquinoline modification is an obvious variation (involving a minor addition of a fused benzene ring to benzoquinoline) that will produce a dopant species with similar chemical and physical properties such that the modification would have been predictable with a reasonable expectation of success.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuge et al. (JP 2003-007467 A) in view of Jarikov (US 2004/0076853 A1) and Furugori et al. (US 2003/0141809 A1).

Tsuge et al. in view of Jarikov discloses the light-emitting device as claimed in Claim 6 as shown above. However, Tsuge et al. in view of Jarikov does not disclose that the further light-emitting material is a further iridium complex.

Furugori et al. discloses the use of plural metal complexes in the light-emitting layer with a metal = iridium ([0035]). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate further dopant iridium complexes to the light-emitting layer of the organic EL device as disclosed by Tsuge et al. in view of

Jarikov. The motivation is provided by the fact that such further iridium dopants could allow further tuning of the light emission spectrum of the organic EL device that cannot be achieved if only a single iridium species is used as disclosed by Furugori et al.

### ***Response to Arguments***

1. The Applicant argues for the entirely different function of the host compared to the dopants of a luminous layer of an organic EL device on page 5. The Examiner finds the argument persuasive in light of the disclosure of Tsuge et al. and Jarikov.
2. The Applicant argues on page 5 that neither Tsuge et al. nor Jarikov provide any reason or suggestion for applying dibenzoquinoline as a doping agent in the iridium complex as disclosed by Tsuge et al. The Examiner disagrees. Tsuge et al. discloses a generalized formula for an iridium complex that comprises a range of aromatic heterocyclics ( $X_{12}-ArN$ , Claim 9) and discloses the possibility of producing fused phenyl homologs based on the 2-phenyl-pyridine skeleton as disclosed in Chemical formulas 48 and 50. Thus, it is the position of the Examiner that coupled with this motivation and the structurally homologous nature of dibenzoquinoline (vs. benzoquinoline) in addition to the fact that dibenzoquinoline is a widely known compound for use in organic EL devices as disclosed by Jarikov, the modification would have been predictable to one of ordinary skill in the art with reasonable expectation of success.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. L. YANG whose telephone number is (571)270-1137. The examiner can normally be reached on Monday to Thursday from 8:30 am to 6:00 pm Eastern.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Lawrence Tarazano can be reached on (571)272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/  
Supervisory Patent Examiner, Art Unit 1786

/J. Y./  
Examiner, Art Unit 1786